

device GJD checks whether each conference participant HMi pays attention to another conference participant HMj at a constant interval, and sets a variable Aij indicating whether attention is paid to "1" when the conference participant HMi pays attention to the conference participant HMj, and sets it to "0" when the conference participant HMi does not pay attention to the conference participant HMj.

When attention checking is finished, the seating-order determination device GJD calculates the information request degree of the conference participant HMi for the conference participant HMj at a time "t" by the following expression (1).

$$R_{ij}(t) = KR_{ij}(t-1) + A_{ij}(t) \quad (1)$$

where, K is an attenuating coefficient.

Then, the seating-order determination device GJD calculates an overall satisfaction degree Sm of the entire conference participants for each of all possible seating-order candidates (seating-order number m). The following expression (2) is used.

$$S_m = \sum_i \sum_j W_{mij} \cdot R_{ij} \quad (2)$$

where, Wmij is a satisfaction-degree weighting coefficient determined in advance for each information request degree in each seating order, and held, for example, in a satisfaction-degree weighting table shown in Fig. 51.

The table shown in Fig. 51 shows a case in which the number of conference participants is six. Characters A to F correspond to seat numbers, and numerals 1 to 6 shown therebelow correspond to conference participants HM1 to HM6.

Since the relative positional relationships among conference participants are meaningful in a seating order, when it is specified, for example, that a conference participant HM1 is always assigned to a seat A, the number of seating orders is equal to the number of the permutations of five things, which is 120, and a seating-order number ranges from 1 to 120.

Fig. 53 shows an example arrangement of seats A to F.

The satisfaction-degree weight W_{mij} shown in Fig. 51 is set, for example, larger when the distance between HM_i and HM_j is closer in a seating order "m." More specifically, for example, the reciprocal $1/D_{ij_1}$ of the number D_{ij_1} indicating that HM_j is located at the D_{ij_1} -th position from HM_i , or the reciprocal $1/D_{ij_2}$ of a number D_{ij_2} indicating the distance between HM_i and HM_j when the distance between adjacent seats is set to "1" can be used as the satisfaction-degree weight.

In a seating order shown in Fig. 54, D_{16_1} is 2, and D_{16_2} is $\sqrt{3}$.

The seating-order determination device GJD determines the seating order corresponding to the maximum satisfaction

0072301-106501
105901-1022700

degree S_m as a result of calculation. When there is a plurality of the maximum satisfaction degrees S_m , the seating order which makes the sum of the distances of movements required for the other conference participants, viewed from each conference participant smallest, or the seating order which has the smallest seating-order number can be selected.

10. Attention-degree-information generating operation in a teleconference device

Various operations for dynamically changing a seating order according to the attention degrees of conference participants have been described. A specific processing for detecting a direction (direction toward any of the monitor devices MD2 to MDn or another direction) in which a conference participant HM1 pays attention, according to image data sent, for example, from the camera of the monitor device MDM disposed at the front of the conference participant HM1 in the attention-degree-information generating section JB1 shown in Fig. 2 will be described.

As a first example of the processing for detecting a direction in which the conference participant HM1 pays attention, to be performed in the attention-degree-information generating section JB1 of the teleconference device TCD1 according to the present embodiment, the

00072304.100501